

REMARKS

The Official Action of February 14, 2008, and the prior art relied upon therein have been carefully reviewed. The claims in the application are now claims 1-7, including new claims 6 and 7, and applicant respectfully submits that all the claims define patentable subject matter warranting their allowance. Accordingly, favorable reconsideration and allowance are earnestly solicited.

Acknowledgement by the PTO of the receipt of applicant's papers filed under Section 119 is noted.

For the record, applicant notes that no rejections have been imposed under Section 112, and applicant accordingly understands that applicant's claims are deemed by the PTO to be in full compliance with Section 112, and applicant is proceeding in reliance thereof. Applicant also notes that no rejections have been imposed under Section 102, whereby applicant understands that the PTO agrees that applicant's claims define novel subject matter.

New claims 6 and 7 define patentable subject matter for the reasons pointed out below.

Claim 1 has been rejected as obvious under Section 103 from any one of Kawabata USP 4,580,542, Matsui USP

4,321,136, or Davis USP 4,680,110, any one in view of McQueen et al USP 6,208,254 (McQueen). These rejections are respectfully traversed.

Davis appears to be the closest of the three main references to the present invention, so applicant will first address the less material Kawabata and Matsui, both of which relate exclusively to devices for **heating** the fuel, subject matter exactly contrary to the present invention in which an object is to sense when the fuel, which also serves as a lubrication fluid and a cooling fluid for the feed pump, has become overheated. Applicant believes and respectfully submits that the person of ordinary skill in the present art, seeking to solve the aforementioned problem, would not have been led to consider and learn from prior art in which the object is to heat the fuel, contrary to the objective of the present invention.

Thus, Kawabata describes a fuel filter in which the filter case has the function of heating the fuel, and is made by putting short metallic fibers, such as aluminum or copper, within the thermoplastic casing 11 of the disclosed fuel heater 10 (column 2, commencing at line 21). As understood, the casing itself is the heating body (column 1, commencing at line 54), and heating is achieved by an electrical current flow through the metallic fibers embedded in the thermoplastic

resin. Kawabata further states (column 2, commencing at line 34) :

When the temperature rises... and reaches the transfer temperature level, these thermoplastic resins change from a crystalline substance to a non-crystalline [amorphous] substance. At this time, the thermoplastic resin increases abruptly in volume, thereby cutting off the electric conductive passage chains of the short metal fibers contained in the thermoplastic resin and enlarging the distances between the short metal fibers.

Thus the physical structure of the casing itself acts as a cut off switch to stop heating when the temperature reaches a predetermined level.

There is no temperature sensor in Kawabata. What Kawabata teaches is clearly to obtain control at a predetermined maximum temperature without inserting a temperature sensor within the casing itself. Moreover, Kawabata does not teach the **measuring** of temperature at all, but only teaches the person of ordinary skill in the art to interrupt heating upon reaching a predetermined temperature which is also a function of the chemical properties of the specific resin used to make the filter casing.

There is no way that the person of ordinary skill in the art could possibly learn anything from McQueen which could be incorporated into Kawabata to even remotely approach applicant's embodiments. Indeed, Kawabata is not only antithetical to the present invention, but is also

antithetical to McQueen, using an entirely different approach from McQueen, whereby the two references cannot be reasonably combined.

Withdrawal of the rejection based on Kawabata in view of McQueen is respectfully requested.

Matsui like Kawabata, also exclusively relates to a device for heating fuel, contrary to the objective of the present invention. In Matsui, the heating device is for the purpose of avoiding problems due to parrafin formation in the fuel. To prevent overheating of the fuel, Matsui provides a bimetallic switch 14 placed on the outside of the cover of the heating device, the bimetallic switch being capable of turning off the heating means at only a single pre-selected temperature.

Again, the use of a bimetallic switch is quite unlike the present invention, and also quite unlike anything disclosed by McQueen. Even if it were obvious to combine the references, respectfully denied by applicant, the resultant reconstruction of Matsui would still have the McQueen temperature sensor on the outside of the Kawabata casing rather than on the inside as claimed. There is no teaching for locating a temperature sensor where it is located and claimed in the instant invention. Moreover, applicant believes and respectfully maintains that the proposed combination would not have been obvious because it would make

no sense, considering the objective of Matsui, to abstract anything from McQueen in order to modify Matsui.

Withdrawal of the rejection is in order and is respectfully requested.

While Davis is more pertinent because it at least is not exclusively directed to a fuel heater (although that is certainly an option in Davis), Davis is still a quite remote from the present invention. Davis describes several different embodiments of fuel filters having temperature sensors for sensing the fuel temperature, placed at the bottom of the filter case. Separate water draining means are also provided to drain water which separates from the fuel. However, as best understood, the purpose of the temperature sensor, e.g. sensor 80, 104, 120, 144, is to sense when the temperature of the fuel is too low and thus activate heating means, again a feature contrary to the present invention.

McQueen shows a temperature sensor (Resistance Temperature Detector - RTD) comprising a chip 15 on which a serpentine electric resistance 18 is placed, having two electrical contacts 21, 22. Chip 18, due to its thin dimensions, is suitable to be placed in an external recess, e.g. 13, 14, of a conduit through which a liquid or other fluid can flow, in order to measure the temperature of the liquid or gas.

Column 10, lines 16-26 of McQueen states also that the device can be used to determine the level of a liquid in a vertical conduit, by exploiting the fact that the presence of air would amount to a reduced heat dissipation, while the presence of a liquid such as water would amount to an high heat dissipation, i.e. liquid level measurement in such a case would be indirect.

Applicant believes and respectfully submits that the teaching of McQueen is that its device is only capable of determining the presence or absence of a liquid at a given level, and not to measure its level.

Therefore the fact that an RTD is very sensitive to temperature changes is immaterial to evaluating the issue of non-obviousness. Also applicant respectfully traverses Examiner's statement (p. 4, c. 9 of Official Action) that McQueen teaches a sensor responsive to even small changes in volume. As stated above, McQueen is only capable of determining the presence or absence of a liquid, as clearly admitted at Col. 10, lines 16-26.

Applicant believes and respectfully submits that there is no clear indication in the prior art to arrive at claim 1, in which it is stated that the means for measuring the water level in the chamber comprises a temperature sensor. Davis does not have a sensor means for temperature integrated with the water level measuring means, and McQueen is not

capable of determining the level of liquid. Moreover, there is no teaching as to how it would be possible to modify Davis in view of McQueen.

Withdrawal of the rejection based on Davis in view of McQueen is in order and is respectfully requested.

In general, as stated above, the prior art does not disclose or make obvious that the means for measuring the water level in the chamber also comprising a temperature sensor. Kawabata and Matsui do not measure temperature and their sensors are not within the casing. And as also mentioned above, Davis does not have a sensor for temperature integrated with the water level measuring means, and McQueen is not capable of determining the level of liquid. The prior art does not lead the person of ordinary skill in the art to the claimed subject matter.

Claims 2 and 3 have been rejected as obvious under Section 103 from Kawabata in view of McQueen. The rejection is respectfully traversed.

Claims 2 and 3 depend from and incorporate the subject matter of claim 1. Claims 2 and 3 are therefore patentable for the same reasons as indicated above as regards the rejection of claim 1 based on Kawabata in view of McQueen. Moreover, even if the proposed combination were obvious,

respectfully denied as pointed out above, features of the dependent portions of claims 2 and 3 would not be reached.

Withdrawal of the rejection is in order and is respectfully requested.

Claims 4 and 5 have been rejected as obvious under Section 103 from any one of Kawabata, Matsui or Davis in view of McQueen and further in view of Kurz USP 5,394,134. These rejections are respectfully traversed.

Claims 4 and 5 depend from and incorporate the subject matter of claim 1. Kurz has not been cited to make up for the aforementioned deficiencies as pointed out above with respect to the rejection of claim 1, and of course Kurz does not do so.

Moreover, Kurz does not show features of the dependent part of claim 5, also present in new claims 6 and 7.

Withdrawal of these rejections is in order and is respectfully requested.

The prior art documents of record and not relied upon by the PTO have been noted, along with the implication that such documents are deemed by the PTO to be insufficiently material to warrant their application against any of applicant's claims.

Applicant believes that all issues raised in the Official Action have been addressed above in a manner that

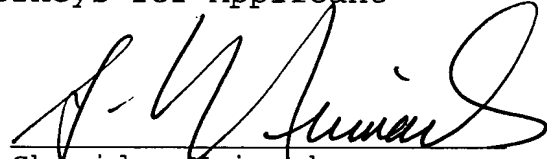
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should lead to patentability of the present application.
Favorable consideration and early formal allowance are
respectfully requested.

Respectfully submitted,

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